FIG. 27. *Spirifer* websteri Fenton. Rockford, Iowa. A distinct species of the *orestes* group. I originally referred to this form the one shown in Figs. 28-31, but this was incorrect.

FIGS. 26; 28-31. *Spirifer* species undescribed. Rockford, Iowa. Another species of the group of S. orestes H. & W. Spirifer zone; about equally characteristic of Rockford and Hackberry Grove.

EXPLANATION OF PLATE

FIG. 1—2a. *Naticopsis gigantea* Hall and Whitfield. Hackberry Grove, Ia.

FIG. 3. *Naticopsis gigantea* Hall and Whitfield. A large specimen, upper whorls restored. Hackberry Grove, Iowa.

FIG. 4. *Floydia concentrica multisinuata* Fenton. Holotype. Rockford, Iowa.

FIG. 5.—5a. *Floydia concentrica* Webster. Fig. 5; portion of a large specimen. Fig. 5a; cross-section of shell of specimen shown In Fig. 5. Rockford, Iowa.

Figures 1-3 are characteristic Spirifer zone forms from Hackberry Grove. Figures 4-5 show two typical specimens from the upper part of the Spirifer zone at Rockford.

A Consideration of Certain Genera Proposed by Ehrhart.

BY HOMER D. HOUSE

The question of what constitutes proper publication of a genus has received more than a little attention both in codes, proposed, promulgated or adopted, and by individual expression of opinion. A new genus published today without description but merely by the implication or indication of a type species would certainly seem inadequately published. However any code or set or rules which is retroactive is sure to encounter perplexing situations, which lead sooner or later to various evasions or deliberate exceptions.

This article deals with a set of generic names published by Friedrich Ehrhart in 1789 (Beitrage zur Naturkunde und den damit verwandten Wissenschaften, etc. 4: 146-148. 1789). Like many genera published by Rafinesque, Sweet, and several other early writers these genera were published without description, merely by the designation of a previously published species. The frequency with which this sort of generic publication occurs indicates that it must have been at the time regarded as a quite proper method. Many of Necker's genera are now regarded as

invalid because no species were indicated, although not a few of them have been more or less commonly recognized and used in floras and manuals up to within a few years ago.

Before passing to a detailed consideration of Ehrhart's genera it may not be out of place to enumerate a few commonly accepted generic names which were published by Rafinesque merely by the citation of a type species. More extended search would doubtless reveal other genera by other authors which belong in the same catagory.

Adlumia Raf.
Scoria (Hicoria) Raf.
Spathyema Raf.
Triadenum Raf.
Achroanthes Raf. (Malaxis Sw.)
Washingtonia Raf. (Osmorhiza Raf.)
Odostemon Raf.
Quamasia Raf.
Leptamnium Raf.
Thalesia Raf.
Leptilon Raf.

The number preceeding each of Ehrhart's names is that of the order in which he published them.

I.—PHAEOCEPHALUM Ehrh. Beitr. 4: 146. 1789.
(Rynchospora Vahl, Enum. 2: 229. 1806)

The type as indicated by Ehrhart, is *Schoenus fuscus* L. *Schoenus corniculatus* Lam. not being regarded as congeneric with this group is not included in the following enumeration of species formerly referred to Rynchospora.

P. album (L)	*Rynchospora alba* (L.) Vahl
P. axillare (Lam.)	*R. axillare* (Lam.) Britton
P. Baldwinii (A. Gray)	*R. Baldwinii* A. Gray
P. brachychaetum (Sauv.)	*R. brachychaeta* Sauv.
P. caducum (Ell.)	*R. caduca* Ell.
P. chapmanii (M. A. Curtis)	*R. chapmanii* M. A. Curtis
P. ciliatum (Michx.)	*R. ciliata* (Michx.) Vahl
P. compressum (Carey)	*R. compressa* Carey
P. Curtissii (Britton)	*R. Curtissii* Britton
P. cymosum (Ell.)	*R. cymosa* Ell.
P. decurrens (Chapm.)	*R. decurrens* Chapm.

P. dodecandrum (Baldw.)	*R. dodecandra* Baldw.
P. distans (Michx.)	*R. distans* (Michx.) Vahl
P. divergens (M. A. Curtis)	*R. divergens* M. A. Curtis
P. Earlei (Britton)	*R. Earlei* Britton
P. fasciculare (Michx.)	*R. fascicularis* (Michx.) Vahl
P. filifolium (Torr.)	*R. filofolia* Torr.
P. fuscoides(Boeckl.)	*R. fuscoides* Boeckl.
P. fuscum (L.)	*Schoenus fuscus* L., *R. fusca* (L.) Ait. f.
P. glomeratum (L.)	*R. glomerata* (L.) Vahl
P. gracilentum (A. Gray)	*R. gracilenta* A. Gray
P. Grayi (Kunth)	*R. Grayi* Kunth
P. inexpansum (Michx.)	*R. inexpansa* (Michx.) Vahl
P. intermedium (Chapm.)	*R. intermedia* (Chapm.) Britton
P. Kneiskernii (Carey)	*R. Kneiskernii* Carey
P. leptorhynchum (C. Wr.)	*R. leptorhyncha* C. Wright
P. microcarpum (Baldw.)	*R. microcarpa* Baldw.
P. milaceum (Lam.)	*R. milacea* (Lam.) A. Gray
P. mixta (Britton)	*R. mixta* Britton
P. palulum (A. Gray)	*R. palula* A. Gray
P. pallidum (M. A. Curtis)	*R. pallida* M. A. Curtis
P. perplexum (Britton)	*R. perplexa* Britton
P. Plankii (Britton)	*R. Plankii* Britton
P. plumosum (Ell.)	*R. plumosa* Ell.
P. proliferum (Small)	*R. prolifera* Small
P. punctatum (Ell.)	*R. punctata* Ell.
P. pusillum (Chapm.)	*R. pusilla* Chapm.; M. A. Curtis
P. rariflorum (Ell.)	*R. rariflora* Ell.
P. solitare (R. M. Harper)	*R. solitaria* R. M. Harper
P. schoenoides (Ell.)	*R. schoenoides* (Ell.) Britton
P. stipitatum (Chapm.)	*R. stipitata* Chapm.
P. Torreyanum (A. Gray)	*R. Torreyana* A. Gray
P. Traceyi (Britton)	*R. Traceyi* Britton.

2.—LEUCOCOMA Ehrh. l. c. p. 146.

The type of this is designated as *Eriophorum alpinum* L. The genus has recently been taken up by Rydberg (*Leucocoma alpina* (L.) Rydb., Rocky Mountain Flora, 108. 1917).

11.—LEIOPHYLLUM Ehrh., l. c.

The type is designated as *Schoenus compressus* L., which is

Scirpus Carices Retz. (*Scirpus compressus* Pers., not Moench).

13.—TIPHOGETON Ehrh., l. c.

The type is designated as *Isnardia palustris* L., and since it is also the type of Isnardia, Tiphogeton becomes a synonym of Isnardia.

14.—HYDROPHILA Ehrh., l. c.

The type is designated as *Tillaea aquatica* L. The same species is made the type of Tilleastrum Britton (Bull. N. Y. Bot. Gard. 3: 1. 1903)

H. aquatica (L.) *Tillaea aquatica* L., *Tillaea simplex* Nutt., *Bulliarda aquatica* DC., *Tilleastrum aquatica* Britton.

H. Drummondii (T. & G.) *Tillaea Drumondii* T. & G., *Tilleastrum Drumondii* Britton.

H. Vaillantii (Willd.) *Tillaea Vaillantii* Willd., *Tilleastrum Vaillantii* Britton.

15.—PRATICOLA Ehrh., l. c.

The type is designated as *Thalictrum simplex* L., native of Europe. The name is not valid unless quite extensive segregation of the genus Thalictrum, as now constituted, should be made.

16.—LIMNAS Ehrh., l. c.

The type is designated as *Ophrys paludosa L.* This has been placed in the genus *Sturmia* Reichb. (1828), which is invalidated by *Sturmia* Hoppe (1799) and *Sturmia* Gaertn. (1805).

The writer has previously pointed out (Torr. Club Bul. 32: 378. 1905) that the type of Orphys L., is *Orphys ovata* L., and that Listera is a generic synonym. The type of Malaxis Sw. (1788) is *M. spicata*, congeneric with our native species now known as *M. monophylla* (L.) Sw., and *M. unifolia* Michx. *Ophrys paludosa* L., was also included by Swartz in Malaxis, and has been reported from Otter Tail County, Minn. and is common in Europe, so that Limnas Ehrh., must be regarded as a synonymous generic name of Malaxis. *M. paludosa* however, differs in certain important characters from our native species, and if seperated from Malaxis, the generic name Limnas would be available for it.

21.—MARISCUS Ehrh., l. c.

The type is designated as *Schoenus mariscus* L. This name dating

from Haller, had already been taken up for this type by Zinn (Cat. Hort. Goett. 79. 1757). Cladium P. Br. (1756) being a hyponym, is not recognized in recent floras.

34.—STYPHORRHIZA Ehrh., l. c. p. 147.

The type is designated as *Polygonum viviparum* L., and as a genus is antedated by Bistorta (C. Bauhin) Miller.

37.—HELLEBORINE Ehrh., l. c.

The type is designated as *Serapias latifolia* which is the same as Serapias helleborine L., now recognized as the type of Serapias, so that Helleborine Ehrh, becomes another of the numerous synonyms of Serapias.

41.—TRICHOPHYLLUM Ehrh., l. c.

The type is designated as *Scirpus acicularis* L., so that Elocharis R. Br. (1810) becomes a synonym of Trichophyllum.

T. aciculare (L.)	*Scirpus acicularis* L., *Eleocharis acicularis* R. &. S.
T. acuminatum (Muhl.)	*Eleocharis acuminata* (Muhl.) Nees
T. albidum (Torr.)	*E. albida* Torr.
T. arenicolum (Torr.)	*E. arenicola* Torr.
T. atropurpureum (Retz.)	*E. atropurpurea* (Retz.) Kunth.
T. Baldwinii (Torr.)	*E. Baldwinii* (Torr.) Chapm.
T. bicolor (Chapm.)	*E. bicolor* Chapm.
T. capitatum (L.)	*Schoenus capitatus* L., *Scirpus tenuis* Willd., *Eleocharis tenuis* Schultes, *E. capitata* (L.) R. Br.
T. cellulosum (Torr.)	*E. cellulosa* Torr.
T. Chaetaria (R. & S.)	*E. Chaetaria* R. & S.
T. cylindricum (Buckl.)	*E. cylindrica* Buckl.
T. diandrum (C. Wr.)	*E. diandra* C. Wright
T. elongatum (Chapm.)	*E. elongata* Chapm.
T. Engelmanni (Steud.)	*E. Engelmanni* Steud.
T. intermedium (Muhl.)	*E. intermedia* (Muhl.) Schultes
T. intermedium var. *Habereri* (Fernald)	Var. *Habereri* Fernald
T. interstinctum (Vahl)	*Scirpus interstinctus* Vahl, *Eleocharis interstincta* R. & S.

T. lanceolatum (Fernald)	*E. lanceolata* Fernald
T. maculosum (Vahl)	*E. maculosa* (Vahl) R. Br.
T. monticolum (Fernald)	*E. monticola* Fernald
T. mutatum (L.)	*E. mutata* (L.) R. & S.
T. nodulosum (Roth)	*E. nodulosa* (Roth) Schultes
T. ochreatum (Nees)	*E. ochreata* (Nees) Steud.
T. obtusum (Willd.)	*Scirpus capitatus* Walt., Not L., *Scirpus obtusus* Willd., *Eleocharis obtusa* Schultes.
T. oblivaceum (Torr.)	*E. olivacea* Torr.
T. ovatum (Roth)	*E. ovata* (Roth) R. & S.
T. palustre (L.)	*E. palustris* (L.) R. & S.
Var. *calvum* (Torr.)	
Var. *glaucescens* (Willd.)	
Var. *vigens* (Bailey)	
T. praticolum (Britton)	*E. praticola* Britton
T. proliferum (Torr.)	*E. prolifera* Torr.
T. Ravenelii (Britton)	*E. Ravenelii* Britton
T. Robbinsii (Oakes)	*E. Robbinsii* Oakes
T. rostellatum (Torr.)	*E. Rostellata* Torr.
T. simplex (Ell.)	*Scirpus simplex* Ell., *Eleocharis simplex* A. Dietr. *Eleocharis tortilis* (Link) Schultes.
T. Torreyanum (Boeckl.)	*E. Torreyana* Boeckl.
T. tuberculosum (Michx.)	*E. tuberculosa* (Michx.) R. & S.
T. tricostatum (Torr.)	*E. tricostata* Torr.
T. thermale (Rhydb.)	*E. thermalis* Rydb.
T. viviparum (Kunth)	*E. vivipara* Kunth.

44.—HYPOPITYS Ehrh., l. c.

The type is designated as *Monotropa hypopitys* L. As a generic group this had already been recognized by Adanson in 1763.

45.—CHAMAEMORUS Ehrh., l. c.

The type is designated as *Rubus chamaemorus* L. Some attempts have been made to segregate the genus Rubus, which contains, as is generally known, a number of distinct groups of species. Greene (Leaflets 1: 245. 1906) adopts the genus from Clusius, and it is apparently as worthy of recognition as a segregate of Rubus, as is Rubacer. (Bossekia Neck.) or Oreobatus Rydb.

Chamaemorus chamaemorus (L.) *Rubus chamaemorus* L. *Rubus nubis* S. F. Gray.

54.—MONANTHIUM Ehrh., l. c. p. 148.

The type is designated as *Pyrola uniflora* L. This is the type also of Moneses Salisb. (1821), and of Bryopthalmum E. Meyer (1839).

Monathium uniflorum (L.) *Pyrola uniflora* L. *Moneses grandiflora* S. F. Gray.

Monathium reticulatum (Nutt.) *Moneses reticulata* Nutt.

66.—HELICTONIA Ehrh., l. c.

The type is designated as *Ophrys spiralis* L., Hence Ibidium, Gryostachys and Spiranthes are all synonyms. It has been pointed out by Niewland (Am. Mid. Nat. 3: 132. 1913) that Bauhin's name for this genus, Triorchis, has been properly published by Petiver in 1764, and is therefore the earliest generic name, since 1753, for this orchidaceous genus which has been so variously designated within the past twenty years. To Doctor Niewland's treatment I would add the following species:

Triorchis vernalis (Engelm. & Gray) *Spiranthes vernalis* Engelm. & Gray, *S. neglecta* Ames, *Gyrorostachys linearis* Rydb., *Ibidium vernale* House.

Triorchis Beckii (Lindl.) *Spiranthes Beckii* Lindl., *S. simplex* A. Gray (not Griseb.), *Gyrostachys simplex* Kuntze, *S. grayi* Ames, *Ibidium Beckii* House. *Triorchis Grayi* Niewul.

Triorchis lacinata (Small) *Gyrostachys lacinata* Small.

Triorchis longilabris (Lindl.) *Spiranthes longilabris* Lindl. *S. brevifolia* Chapm., *Gyrostachys brevifolia* Kuntze.

Triorchis ovalis (Lindl.) *Spiranthes ovalis* Lindl., *S. cernua* var. *parviflora* Chapm. *G. parviflora* Small

Triorchis spiralis (Sw.) *Satyrium spirale* Sw. not *Ibidium spirale* Salisb., *Neottia tortilis* Sw. *Spiranthes tortilis* L. C. Rich. *Ibidium tortile* House.

Triorchis xyridifolia (Small) *Gyrostachys xyridifolia* Small

Triorchis tribola (Small) *Gyrostachys reverchonii* Small *Gyrostachys tribola* Small. *Ibidium trilobum* Small.

76.—CARDIOPHYLLUM Ehrh., l. c.

The type is designated as *Ophrys cordata* L. This is congeneric

Ophrys ovata L, the type of Ophrys, and the name Cardiophyllum takes its place with Listera as a synonym of Ophrys.

78.—AETOPTERON Ehrh., l. c.

The type is designated as *Polypodium aculeatum L.* This is the type of Polystichum Roth, and antedates the publication of that fern genus by several years. The species of the United States which should be considered under this name number about eight. A contemporary paper in which these species are transferred to Aetopteron, has been submitted for publication to the American Fern Journal.

86.—CORNILLA Ehrh., l. c.

This is but a slight change in spelling of Coronilla L., and the type species, *Coronilla coronata* L., is also here designated as the type of Cornilla Ehrh.

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